Montana Clinical Communication & Surveillance Report

MONTANA
CARDIOVASCULAR HEALTH AND DIABETES PROGRAMS

Montana Department of Public Health and Human Services
Chronic Disease Prevention and Health Promotion Program
Room C314, Cogswell Building
PO Box 202951
Helena, Montana 59620-2951

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KNOWLEDGE AND PERCEPTIONS ABOUT ISCHEMIC STROKE RISK, SYMPTOMS AND THE OPTIMAL RESPONSES AMONG PERSONS WITH DIABETES

WHAT'S INSIDE

BACKGROUND

Ischemic stroke is a leading cause of morbidity and mortality among persons with diabetes.[1] Stroke is at least three times more common in persons with diabetes compared to those without diabetes. Among individuals with both diabetes and hypertension, stroke occurs almost nine times more often compared to individuals with neither condition.[2] Stroke mortality is higher among individuals with diabetes, particularly among women.[3,4] Clinical and public health efforts to promote stroke awareness and the need to seek urgent treatment in high-risk persons assumed a new importance after a major clinical trial of thrombolytic therapy showed improved outcomes for patients experiencing ischemic stroke if treated within three hours of symptom onset.[5] Time lost can mean brain lost. Barriers to prompt treatment include the lack of awareness of stroke warning signs among patients and family members, underutilization of 9-1-1 emergency medical services (EMS) and long distances to tertiary care facilities with diagnostic and treatment capabilities. This report describes the level of awareness of stroke warning signs and the need to call 9-1-1 emergency medical services when these signs are present among persons with and without diabetes aged 45 years and older in Montana.

METHODS

In 2004 and 2005, the Montana Department of Public Health and Human Services conducted random digit dial telephone surveys of adults aged 45 years and older in Cascade and Yellowstone Counties (N = 1,599). A trained interview team using computer-assisted telephone interviewing software conducted the survey, which included questions regarding the warning signs for stroke, use of 9-1-1 emergency medical services, previous diagnoses of risk factors for stroke and demographic information. Respondents were prompted to name up to three warning signs for stroke, and were asked four questions to identify what they would do if they witnessed someone having a stroke or if they experienced sudden stroke warning signs that would not go away. Respondents were also asked about a history of myocardial infarction, angina or coronary heart disease, stroke, transient ischemic attack, atrial fibrillation, diabetes, high blood pressure, high cholesterol and if they currently smoked cigarettes.

Data analyses were completed using SPSS V14.0 software (SPSS Inc., Chicago, IL). Chi-square tests were used to compare differences in awareness of two or more stroke warning signs and the need to use 9-1-1 emergency medical services among respondents with and without diabetes. A p-value ≤ 0.05 was considered significant.

RESULTS

Characteristics of Respondents

Overall, 8% (n = 134) of respondents reported a history of diabetes. Respondents with diabetes were significantly more likely to be 65 years of age or older (59% vs. 36%) and have a history of cardiovascular disease (CVD) (35% vs. 13%), atrial fibrillation (19% vs. 10%), hypertension (72% vs. 36%) and high cholesterol (56% vs. 31%) compared to respondents without diabetes (data not shown). There were no differences in the proportion of respondents who were female (60% vs. 60%) or current smokers (16% vs. 18%) among respondents with and without diabetes.

Awareness of the Warning Signs for Stroke

There were no statistically significant differences in awareness of individual warning signs for stroke among respondents with and without diabetes (Table 1). Additionally, there were no statistically significant differences in

Table 1. Perceptions of stroke warning signs and risk factors among respondents with and without diabetes.

	Diabetes (N =134) %(n)	No Diabetes (N =1,465) %(n)
Numbness (any)	40 (54)	48 (702)
Speech problems	41 (55)	40 (581)
Dizziness	35 (47)	35 (505)
Headache	22 (29)	25 (360)
Weakness (any)	22 (30)	24 (352)
Vision problems	16 (22)	18 (263)
Trouble walking	11 (15)	11 (162)

Table 2. Percent and number of persons aware of two or more warning signs and symptoms for stroke among respondents with and without diabetes.

	Diabetes	No Diabetes
	(N =134)	(N =1,465)
	%(n)	%(n)
Overall	67 (90)	72 (1,054)
Age (years)		
45 to 64	75 (41)	76 (714)
65+	62 (49)	64 (340)
Sex		
Male	70 (37)	69 (402)
Female	65 (53)	74 (652)
Two or more risk factors for CVD*	68 (83)	70 (302)

*Risk factors include a history of myocardial infarction, stroke, transient ischemic attack, atrial fibrillation, hypertension, high cholesterol and current smoking.

Table 3. Reactions to witnessing a potential stroke and to experiencing potential warning signs of a stroke among respondents with and without diabetes.

	Diabetes	No Diabetes
	(N =134)	(N =1,465)
	%(n)	%(n)
Witnessed stroke		
Take to hospital	19 (26)	15 (222)
Call 9-1-1	69 (93)	76 (1,107)
Other	11 (15)	9 (134)
If you experienced sudden...that would not go away, what is the first thing you would do?		
Difficulty speaking		
Go to hospital	16 (21)	16 (232)
Call 9-1-1	48 (64)	48 (698)
Other	37 (49)	37 (535)
Numbness or loss of sensation		
Go to hospital	23 (31)	21 (301)
Call 9-1-1	44 (59)	45 (653)
Other	33 (44)	35 (511)
Weakness or paralysis		
Go to hospital	22 (29)	22 (321)
Call 9-1-1	51 (68)	49 (724)
Other	28 (37)	29 (420)

awareness of two or more warning signs for stroke in respondents with or without diabetes - overall, by age, by sex or by the number of risk factors for CVD (Table 2).

Intentions to Call 9-1-1 Emergency Medical Services

Respondents with diabetes were no more likely than those without diabetes to indicate that they would call 9-1-1 if they witnessed someone having a potential stroke (Table 3). Respondents with diabetes were also no more likely than those without diabetes to indicate that they would call 9-1-1 if they experienced sudden warning signs that did not go away, including sudden speech difficulties (48% vs. 48%), numbness on one side of the body or face (44% vs. 45%) or paralysis on one side of the body or face (51% vs. 49%).

CONCLUSIONS

Persons with diabetes were no more likely than persons without diabetes to be aware of the warning signs for stroke; nor were they more likely to report that they would call 9-1-1 emergency medical services if they witnessed or experienced a potential stroke. Additionally, 33% of respondents with diabetes could not correctly identify two or more warning signs for stroke. Approximately half reported that they would not call 9-1-1 if they, themselves, were experiencing stroke warning signs. Persons with diabetes can benefit from thrombolytic therapy, but only if they respond quickly.

Despite the limitations of the survey, there are important implications for Montana clinicians and educators. Patients with diabetes, and their families, need specific counseling and education regarding the recognition of stroke warning signs and the need to utilize 9-1-1 for any suspected stroke. Hospital pre-notification by EMS can expedite diagnostic tests to determine stroke type and eligibility for thrombolytics. Such education should be incorporated routinely into all diabetes education programs. In order to reduce stroke morbidity and mortality in the state, the Montana Cardiovascular Health Program continues to sponsor public education campaigns on stroke signs and symptoms awareness and intent to call 9-1-1. Public health efforts to increase public awareness must be supplemented with clinical counseling, particularly for all high-risk patients such as those with diabetes.

The Montana Stroke Initiative web site contains a number of resources to assist clinicians, educators and EMS providers: www.montanastroke.org

REFERENCES

1. Kissela BM, Khoury J, Kleindorfer D, Woo D, Schneider A, Alwell K, Miller R, Ewing I, Moomaw CJ, Szaflarski JP, Gebel J, Shulka R, Broderick JP. Epidemiology of ischemic stroke in patients with diabetes: the Greater Cincinnati/ Northern Kentucky Stroke Study. *Diabetes Care* 28:355-359, 2005.

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5. National Institute of Neurological Disorders and Stroke: Tissue plasminogen activator for acute ischemic stroke. The National Institute of Neurological Disorders and Stroke rt-PA Stroke Study Group. *New Eng J Med*. 333:1581-1587, 1995.

SAVE THE DATE!

DIABETES PROFESSIONAL CONFERENCE – GREAT NORTHERN HOTEL, HELENA, MONTANA, OCTOBER 11–12, 2007

The Montana Diabetes Project's professional conference will be held on Thursday and Friday, October 11-12, 2007 in Helena, Montana at the Great Northern Hotel. This year's conference, "Building Champions for Diabetes Care and Prevention, 2007," will feature keynote speaker Dr. Irl Hirsch, Professor of Medicine at the University of Washington Medical Center. On-line registration is available at: *www.umt.edu/ce/cps/mtdiabetesconference.htm*. For more information, contact Susan Day at (406) 444-6677 or e-mail *sday@mt.gov*.

SAVE THE DATE!

4TH ANNUAL YELLOWSTONE VALLEY REGIONAL STROKE CONFERENCE – MANSFIELD CENTER, BILLINGS, MONTANA, OCTOBER 12, 2007

St. Vincent Healthcare's annual stroke conference will be held on Friday, October 12, 2007 in Billings, Montana at the Mansfield Center. For more information or to register, contact Gina Zeilstra at (406) 237-3950 or 1-888-775-2626.

SAVE THE DATE!

MONTANA CARDIOVASCULAR HEALTH SUMMIT – HOLIDAY INN AT THE PARK, MISSOULA, MONTANA, APRIL 4, 2008

The Cardiovascular Health Program's annual professional conference will be held on Friday, April 4, 2008 in Missoula, Montana at the Holiday Inn at the Park. For more information, contact Crystelle Fogle at (406) 947-2344 or e-mail *cfogle@mt.gov*.

SAVE THE DATE!

WYOMING CHRONIC DISEASE CONFERENCE – LITTLE AMERICA HOTEL, CHEYENNE, WYOMING, MAY 7– 8, 2008

The Wyoming Chronic Disease Conference will be held on Wednesday and Thursday, May 7-8, 2008 in Cheyenne, Wyoming at the Little America Hotel. For more information, contact Betty Holmes at (307) 777-6011.

WHAT ARE THE MONTANA DIABETES PREVENTION AND CARDIOVASCULAR HEALTH PROGRAMS AND HOW CAN WE BE CONTACTED?

The Montana Diabetes Control and Cardiovascular Health Programs are funded through cooperative agreements with the Centers for Disease Control and Prevention, Division of Diabetes Translation (U32/CCU822743-05), the Division for Heart Disease and Stroke Prevention (U50/CCU821287-05) and through the Montana Department of Public Health and Human Services.

The mission of the Diabetes Control and Cardiovascular Health Programs is to reduce the burden of diabetes and cardiovascular disease among Montanans. Our web pages can be accessed at http://www.diabetes.mt.gov and http://montanacardiovascular.state.mt.us.

For further information please contact us at:

Diabetes Program Manager:
Helen Amundson, RN, BSN, CDE
hamundson@mt.gov

Diabetes Quality Improvement Coordinators:
Linda Stewart, BSN, RN
lindastewart@bbmt.org

Chris Jacoby, BSN, RN
cjacoby@mt.gov

Diabetes Education Coordinator:
Marcene Butcher, RD, CDE
marcibutcher@msn.com

Epidemiologist:
Carrie Oser, MPH
coser@mt.gov

CVH Secondary Prevention Specialist:
Michael McNamara, MS
mmcnamara@mt.gov

CVH Program Manager:
Crystelle Fogle, MS, MBA, RD
cfogle@mt.gov

CVH Health Education Specialist:
Chelsea A. Fagen, BA
cfagen@mt.gov

Or you may call:
Susan Day, Office Manager
Phone 406/444-6677
sday@mt.gov

Ava Griffenberg, Admin. Asst.
Phone 406/444-5508
agriffenberg@mt.gov

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Room C314, Cogswell Building
PO Box 202951
Helena, Montana 59620-2951

127904-0907